CLAIMS

1. A method for identifying an agent capable of modulating expression of CYP2S1 by a cell, comprising the steps of:

a) providing a cell or cells capable of expressing CYP2S1;

b) contacting a test agent with said cell(s);

c) incubating said cell(s) under conditions which are conducive to enable expression of CYP2S1 when in the absence of the test agent; and

d) detecting whether or not the test agent modulates expression of CYP2S1.

2. A method for identifying an agent capable of modulating expression of CYP2S1 by a cell, comprising the steps of:

a) providing a cell comprising the sequence as shown in Figure 7 or a fragment thereof capable of controlling transcription and/or translation of a reporter nucleic acid located downstream thereof;

b) contacting a test agent with said cell(s);

c) incubating said cell(s) under conditions which are conducive to enable transcription and/or translation of said reporter nucleic acid located downstream; and

d) detecting whether or not the test agent modulates transcription and/or translation of said reporter nucleic acid.

3. The method according to claim 2 wherein the reporter nucleic acid is capable of encoding glutathione S-transferase, an antibiotic, a chromogenic substrate, such as β-galactocidase, luciferase, a fluorescent protein, such as green fluorescent protein, or chloramphenicol acetyl transferase.

4. The method according to any preceding claim wherein said cell(s) is/are a skin cell(s).

5. The method according to claim 3 wherein said skin cell(s) is/are a keratinocyte and/or an epidermal cell(s).

6. The method according to any of claims 1 to 3 wherein said cell(s) is a mammalian, bacterial, yeast or insect cell which has been genetically engineered so as to be capable of expressing CYP2S1 or said reporter nucleic acid.

7. The method according to claim 6, when dependent on claim 1 wherein the cell(s) has/have been genetically engineered so as to comprise nucleic acid capable of encoding CYP2S1 and a sequence upstream thereof capable of controlling transcription and/or translation of said nucleic acid.

8. The method according to claim 7 wherein the sequence upstream of said nucleic acid capable of encoding CYP2S1 comprises the sequence as shown in Figure 7 or transcription and/or translation controlling fragment thereof.

9. A method for identifying an agent capable of modulating activity of CYP2S1, comprising the steps of:

a) providing CYP2S1;

b) contacting a test agent with said CYP2S1; and

c) detecting whether or not the test agent modulates activity of CYP2S1.

10. The method according to any preceding claim wherein the test agent is an antisense oligonucleotide, and RNAi molecule, a chemical drug candidate, a peptide or protein, radiation, such as UV radiation or radiation in combination with a chemical which is capable of being activated by said radiation.

11. The method according to any preceding claim, wherein the test agent is capable of increasing expression and/or activity of CYP2S1.

12. The method according to any one of claims 1 to 10 wherein the test agent is capable of decreasing expression and/or activity of CYP2S1.

13. The method according to any preceding claim for identifying an agent capable of modulating CYP2S1 expression and/or activity for use in treating a skin disorder.

14. The method according to claim 13 wherein the skin disorder is psoriasis.

15. The method according to any one of claims 1 and 4 to 8 wherein detection of any modulation in the expression of CYP2S1 is carried out using an antibody specifically reactive to CYP2S1.

16. The method according to any one of claims 1 and 4 to 8 wherein detection of any modulation in the expression of CYP2S1 mRNA is carried out using quantitative real time PCR analysis.

17. An isolated nucleic acid molecule capable of controlling expression of CYP2S1, the nucleic acid molecule comprising the sequence of Figure 7 or fragment thereof.

18. A recombinant expression vector comprising a nucleic acid capable of encoding CYP2S1 or a reporter protein under transcriptional and/or translational control of the isolated nucleic acid molecule according to claim 17.

19. The recombinant expression vector according to claim 18 wherein the reporter protein is glutathione S-transferase, an antibiotic, a chromogenic substrate, such as β-galactocidase, luciferase, a fluorescent protein, such as green fluorescent protein, chloramphenicol acetyl transferase.

20. A host cell comprising the recombinant vector according to either of claims 18 or 19.

21. The host cell according to claim 20 wherein the cell is a mammalian, bacterial, yeast or insect cell which has been genetically engineered so as to be capable of expressing CYP2S1 or said reporter nucleic acid.

22. Use of the isolated nucleic acid molecule, expression vector or host cell of claims 17 to 21 in the method according to any one of claims 1 to 8 and 10 to 14.

23. A method of making CYP2S1 comprising culturing the host cell according to claim 20 under conditions such that CYP2S1 is expressed; and recovering CYP2S1.

24. Isolated CYP2S1 produced according to claim 23.

25. A pharmaceutical composition comprising isolated CYP2S1 according to claim 24 in combination with a pharmaceutically acceptable carrier therefore.

26. Use of an antibody that binds specifically to CYP2S1 in the method according to any one of claims 1 and 4 to 15.

27. Use of a recombinant vector capable of expressing CYP2S1, in gene therapy.

28. The use according to claim 27 wherein the vector is according to claim 18.

29. The use according to claim 27 wherein expression of CYP2S1 is under control of an inducible promoter.

30. Use of CYP2S1 in the manufacture of a medicament for treating a skin disorder associated with a decrease in CYP2S1 expression in skin, or for administering to a subject displaying reduced CYP2S1 expression.

31. Use of an agent identified by a method according to any one of claims 1 to 17 in the manufacture of a medicament for treating a skin disorder associated with increased or decreased expression of CYP2S1.

32. A method of preventing, treating or ameliorating a skin condition in a subject related to increased or decreased CYP2S1 expression in skin, which comprises administering to a mammalian subject CYP2S1, a vector capable of expressing CYP2S1, or an agent capable of modulating expression of CYP2S1 in skin tissue.

33. A method of diagnosing a skin condition associated with increased or decreased expression of CYP2S1, or a predisposition to such a condition comprising detecting a level of CYP2S1 in a test skin sample and comparing this against a normal control such that an increase or decrease in CYP2S1 expression in the test sample as compared to the normal control is indicative of a skin condition or predisposition to a skin condition.

34. A method of diagnosing a skin condition associated with increased or decreased expression of CYP2S1 or a predisposition to such a condition comprising detecting a polymorphism in a CYP2S1 gene or upstream sequence thereof, which effects expression of CYP2S1, wherein detection of a polymorphism is indicative of a skin disorder associated with increased or decreased CYP2S1 expression, or predisposition thereto.

35. A method of detecting effectiveness of a skin treatment to be administered to a patient suffering from a skin condition, comprising the steps of:

a) obtaining a sample of diseased skin and detecting a level of CYP2S1 expression in the sample of diseased skin prior to administration of the skin treatment;

b) administering said skin treatment to the patient; and

c) after a period of time, obtaining a further sample of diseased skin and detecting whether or not there has been an increase or decrease in CYP2S1 expression.

36. A method of detecting whether or not a subject is likely to respond to a skin treatment comprising the steps of:

a) obtaining samples of diseased skin and non-diseased skin from a subject; and

b) detecting a level of CYP2S1 expression in the diseased and non-diseased samples wherein an increase in expression of CYP2S1 in diseased skin is indicative of a subject who may respond favourably to a chemical which is metabolisable by CYP2S1.

37. A method of identifying possible new skin treatment drug candidates comprising contacting the drug candidate with CYP2S1 and observing for metabolites of said drug candidate.

38. A method of improving effectiveness of a skin treatment being administered to a subject comprising the steps of increasing or decreasing expression of CYP2S1 in diseased skin to be treated.